

# United States Postal Service Biohazard Detection System (BDS)

## The New Jersey Response Plan

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# Objective

To describe an integrated emergency response plan to a signal indicating the presence of anthrax spores in a postal processing center

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2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18 At least 2 letters from Trenton to NYC media	19	20	21	22 Onset of illness NY Post employee
23	24	25	26 Onset of illness, Case #1 , NJ	27	28 Onset of illness, mail carrier , NJ	29
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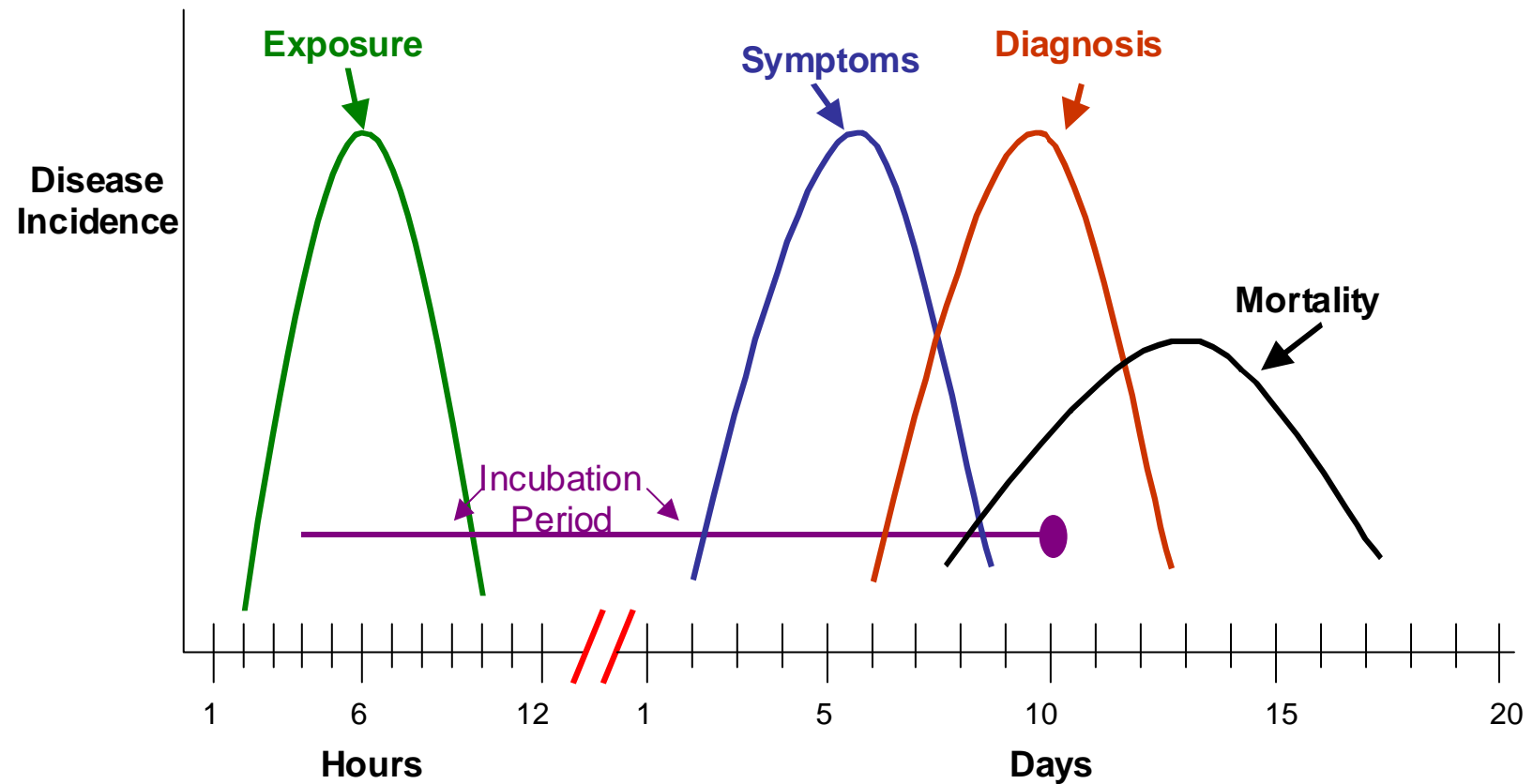
S M T W TH F S

	1	2	3	4	5 Florida case announced	6
7	8	9 Letters mailed from Trenton to D.C.	10	11	12 Trenton Cancellation of letters verified	13 NJ MDs call DHSS about postal employees
14 Onset of illness, Case #3, Case #4 (inhalation) NJ	15 Onset of illness, Case #5 (inhalation) , NJ	16 Inhalation symptom onset, 4 DC USPS workers	17	18 Confirmed cases , #1,2 cutaneous; PDC closed	19	20 Confirmed environmental contamination of PDC
21 First confirmed inhalational case, DC	22 Confirmed inhalational case NJ	23	24	25	26	27
28	29	30	31			

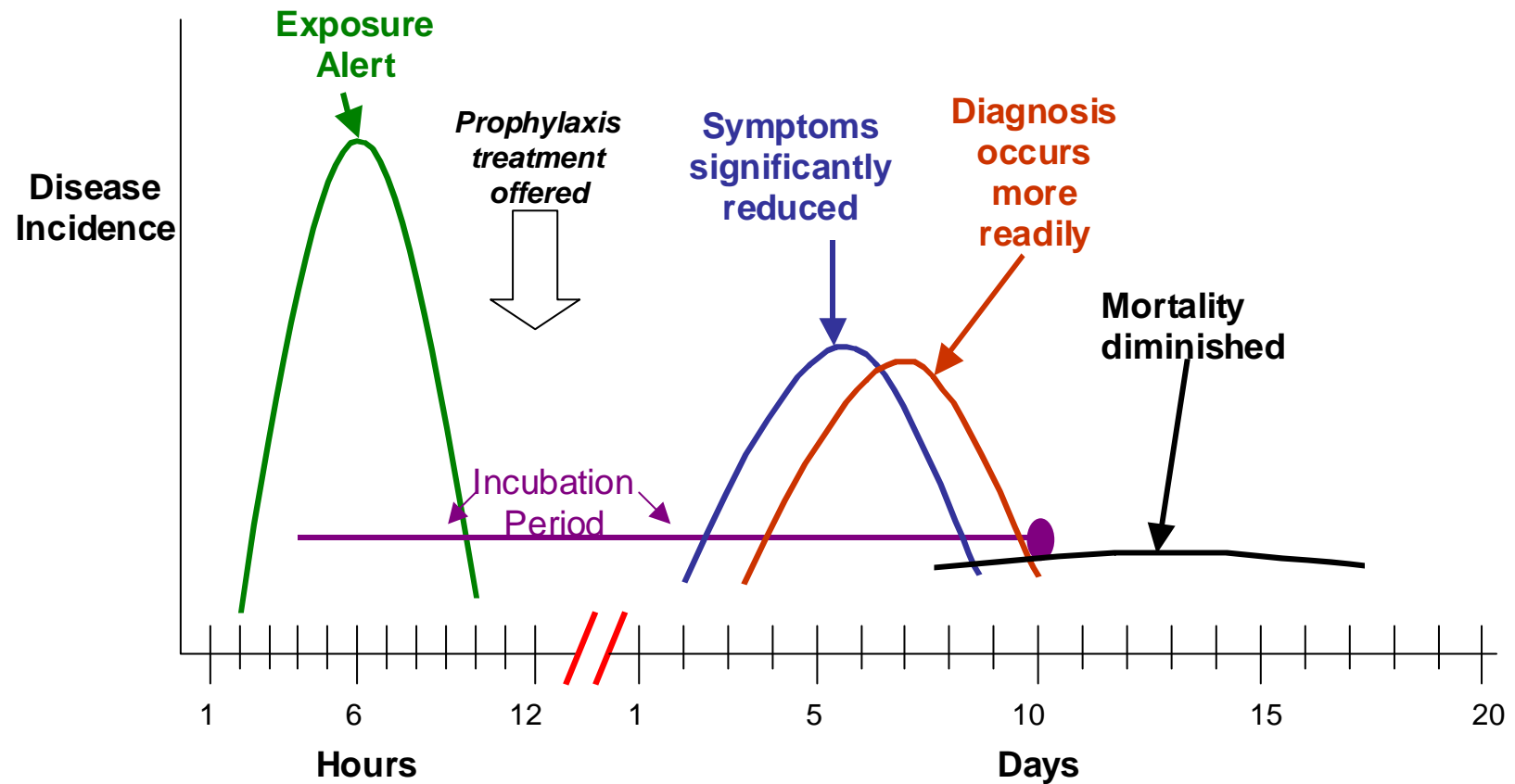
# Exposure vs. Disease Surveillance

Exposure surveillance compared to disease surveillance reduces the timeline for detecting a bioterrorism attack, thereby reducing the risk of disease through post-exposure prophylaxis

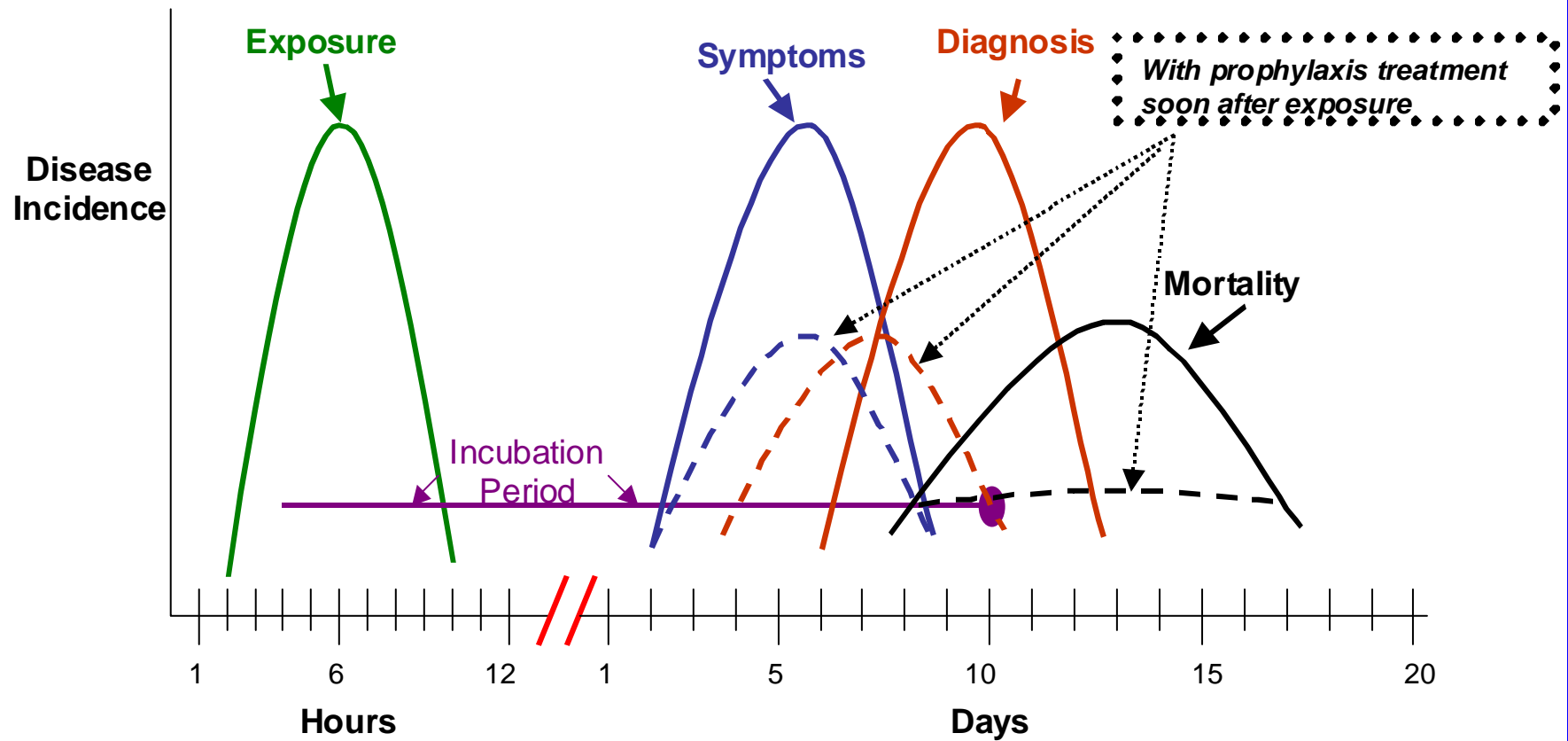
# Standard Disease Surveillance



## Vs. Exposure Surveillance



# Exposure vs. Disease Surveillance





# Exposure Surveillance Systems

- Biowatch--Outdoors
- Biohazard Detection System--Indoors

# Biohazard Detection System (BDS)-USPS

- Free-standing PCR-based technology
- Samples air continuously above mail-sorting machine
- Test run every 60 minutes, 3-11 Tour
- Testing takes ~30 minutes
- Limited to *Bacillus anthracis* (for now)
- Positive “signal” leads to automatic alarm and building evacuation and recall of mail

# Biohazard Detection System



Source: <http://www.lunewsviews.com/usps/pcr.htm>

# Key Planning Issues

- Stakeholder meetings: joint PHC/USPS/Law
- Develop written site-specific response plans
- Prepare educational materials
- Establish unified incident command
- Integrate communications plan
- Prepare PEP clinic
- Law enforcement responsibilities

# Positive BDS Anthrax Signal

## First 8 Hours

- Facility: -Shut down/secure
- Sample: -Extract archived sample
  - Transport to LRN
  - LRN: PCR/Culture
- Employees: -Relocate/Enumerate
  - Aggregate
  - Decontaminate
  - Educate

# Sample Retrieval and Transport

- Sample(s) retrieved by US Postal Inspection Service with protection
- Samples handed off to other inspector(s)
- Samples driven/flown to Trenton NJDHSS State LRN lab by Postal Inspectors or State police

# Laboratory Chain of Events

- BDS trigger in postal facility
- Notification of LRN State reference lab (PHEL) of incoming samples
- Transport of BDS samples to PHEL
- Chain-of-custody transfer to PHEL
- Sample processed and extracted (3h)
- Sample tested by real-time PCR (3h)
- Sample tested by culture (>24)

\*PHEL: Public Health and Environmental Laboratories (NJDHSS)

# Reducing Personal Risk

- Relocate or evacuate
- Place outer clothing into plastic bag
- All wash exposed skin with soap/water
  - Towel placed in plastic bag
- High risk: shower/HEPA/mist
- Put on temporary clothing and footwear
- Fact sheet on anthrax and plan for antibiotic distribution (if needed)
- Shower at home (workers leaving USPS site, and off-site workers and public)



# Employee Preparation

- Service talks
- Meetings with plant management
- Letter from NJDHSS/LHD
- Simulated evacuation drill
  - ~ identification of all employees/visitors
  - ~ decontamination (by risk level) to prevent take home of spores
  - ~ education about anthrax/antibiotics/vaccine
  - ~ instructions on next steps

# LRN-Confirmed BDS Signal

PCR Confirmation

Culture Confirmation

# Antibiotic/Vaccine Clinic

## First 24 hours

- Exposed get 3-5 days of antibiotics if LRN test of initial sample via PCR is positive
- USPS calls employees/business visitors to come to clinic on a staggered schedule, to receive antibiotics within 24 hours
- NJDHSS notifies potentially exposed public

# Antibiotic/Vaccine Clinic

## Cultures positive for anthrax

- Exposed return by 60 hours to receive antibiotics to complete 30 days, also offered 1<sup>st</sup> dose of vaccine
- 2<sup>nd</sup> dose vaccine offered at end of week 2
- Exposed return at 30 days to receive 30 additional days of antibiotics, plus 3<sup>rd</sup> dose of vaccine

# USPS/NJDHSS Communication Plan

- USPIS BDS unit notification
- Law enforcement, NJDHSS, LHD, HAZMAT
- Joint USPS/NJDHSS/Law effort at incident command to communicate on facility issues
- Gov/NJDHSS/OCT communicates to public at large
- USPS communicates with employees who went home

# Responding to a BDS Alert: 2004 New Jersey Protocol

**Evacuate facility/shut  
HVAC/Notification**

Collect employee data

Antibiotic distribution plan in  
"watch" mode  
Employee wash change clothes/shoes

High risk: shower  
Alert staff and public now off-  
site

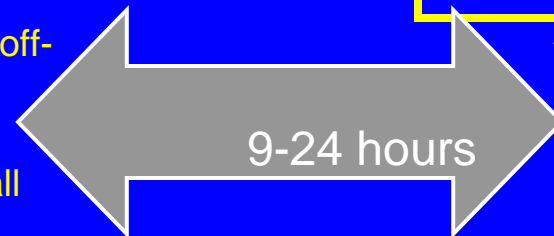
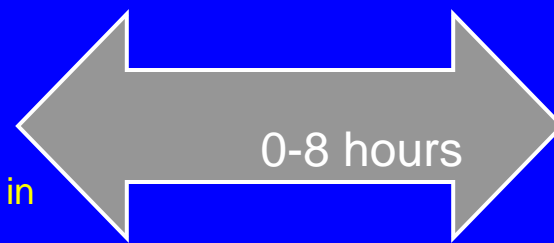
Distribute 5-day course of  
antibiotic prophylaxis for all  
employees

Collect demographic data

Initiate environmental sampling to  
find source of contamination

60-day antibiotic prophylaxis and  
vaccination for selected  
employees

Collect Epi Data  
(upstream analysis)



**BDS Alert**

Sample to LRN  
2 cartridges, liquid reserve

**Positive LRN PCR**

**Negative LRN PCR**

**Notify USPS**

**Confirmed LRN Culture**

**Negative LRN Culture**

**Isolate to CDC**

Source: CDC, with modifications by NJDHSS

# Potential Issues

- Additional public area samples
- Decontamination
- Vaccine distribution using IND protocol
- Worker PEP follow-up
- Distribution of educational materials
- Communication
- Use of similar technology in public places